

May 12, 1952

Review of

Lester: B-galactosidase of Lactose-less mutants of Escherichia coli, K-12

Title: "Lactose-less" is monstrous. Lactose-nonfermenting or just lactose would be much better.

The figures and tables would not be objectionable, except for economy. Figures 1 and 5 (which partly duplicate published work, and might almost as well be summarized by the K_s) should be combined, making an arbitrary adjustment of V if necessary. Figures 2, 3, and 4 must be preserved. The comparisons would be more effective if each figure represented a given buffer, and the pH effects of the different mutants plotted on one figure.

Table 1 is misleading: the growth requirements are irrelevant to the Lac character. It would be much better to put the content of the table in the text, explaining the origin, pertinent characteristics, and genetic behavior of the strains somewhat more explicitly. Here as throughout the paper, assertions as to genetic behavior should be documented. Table 2 is superfluous: a single sentence will cover it. *

p. 5 "revertants". "Phenotypic reversion" is clearly meant. Y-70 probably gives no true reverse-mutations, however, but more often suppressors like those cited on p. 16 ~~XXXXXXXXXXXX~~. Is it definitely excluded that suppressor mutations whose lactose activity is suboptimal might account for the residual activity of W-45?

p. 9 The question of phosphate requirement was disposed of long since (References 3 and 7).

pp. 10-11 The interaction of pH and cation responses is complex, and not adequately treated here. (See Cohen-Bazire & Monod 1951 CR AS 232: 1515). For detailed comparison, the buffers should be either iso-cationic, or loaded with sufficient Na⁺ to minimize any competitions. For the purpose of empirical comparisons here, the procedure is quite adequate, however.

p. 17 Deere's permeability hypothesis is now discredited.

p. 18 Lactase threshold is only another way of stating the paradox.

References and p. 4: should include Monod, Cohen-Bazire and Cohn 1951 Acta Biochim. 7:585-599.

On the whole this is an excellent piece of work and should be published without serious revision. Its deficiencies are only those of inadequate transposition from an expanded dissertation to an economical journal paper.

* Tables IV-V-VI might be combined for more effective comparison, keeping only the specific activity and calculated yield for each fraction. I would be willing to trust the author for the arithmetic.

Sincerely,

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